

Job Hazard Analysis

MSC-PRO-079

Revision 10

Effective Date: September 30, 2014

Topic: Worker Protection

Approved for Public Release;
Further Dissemination Unlimited

Job Hazard Analysis

CHANGE SUMMARY

Rev. 10

Change Summary

This revision clarifies the role of management in the conduct and approval of the job hazard analysis using the Automated Job Hazard Analysis (AJHA) system. It also enhances the hazard analysis requirements for work in the proximity of asbestos contamination.

Rev. 9

Change Summary

The general purpose of this revision is to align MSC-PRO-079 with the requirements of NFPA 70E, Clarify responsibilities for documenting the rationale used to establish hazard controls, and adjust the review frequency for Craft Specific Hazard Analysis.

Rev. 8

Change Summary

Added MSC-MP-47124, *Inter-Contractor Work Control*, Misc., adds 10 CFR 830.122 Criterion 9 verbatim, adds a definition of "Hazardous Energy", Streamlines requirements for the skill based determination, removes a link to the AJHA database for construction subcontractors, and includes editorial changes.

Rev. 7

Change Summary:

New #19: Incorporate operating experience into contractor activities and processes. Verbatim Reference: CRD 0 210.2A Attachment 1, Section 1 A, 5.1 Review Work Scope and Work Site;
New #4: Consider relevant lessons learned from the Hanford Information and Lessons Learned Sharing (HILLS) and/or AJHA Feedback databases.

Added the following new sub-item a: The Contractor shall consider relevant lessons learned, if any, from the Hanford Information and Lessons Learned Sharing (HILLS) and/or AJHA Activity Level Feedback Databases for consideration during work planning and hazard identification and analysis.

Rev. 6

Change Summary:

Correct reference in Appendix B to a paragraph within the body of the procedure itself.

Job Hazard Analysis

1.0 PURPOSE

This procedure establishes the minimum requirements for integrating activity-based job [hazard](#) analysis in to all work. Environment, Safety, and Health (ESH) requirements shall be integrated into work planning and execution when applicable, using a graded approach. Job hazard analysis is used to identify, evaluate, control, and communicate potential hazards and environmental impacts relative to discrete work activities/tasks to be performed. Job hazards analysis is an integral part of the Mission Support Alliance (MSA) work management process defined in MSC-PRO-12115, *Work Management*.

This procedure implements and integrates the following documents: the *MSC General Industrial Hazard Analysis* (GHA), the *Craft Specific Hazard Analysis* (CSHA), and the existing web based Automated Job Hazard Analysis (AJHA) tool with the job hazard analysis process. This procedure identifies how and when the GHA, CSHA, and AJHA are to be used in support of the hazards identification and controls implementation process for work activities. This document identifies the intended use and limitations of a “Standing” AJHA, used for routine/repetitive work versus when an AJHA should be uniquely prepared for specific scope of work. Appendix C “Construction Subcontractor Hazard Analysis” *provides* specifies the job hazard analysis requirement only for construction subcontractors performing work managed by the MSA on the Hanford Site.

MSC-GD-17132, *Job Hazard Analysis Process Guide*, has been developed to provide information and instruction to support consistent and effective implementation of job hazard analysis. It includes guidance on performing initial hazard identification and analysis, and determining the need for carrying out AJHA planning sessions. Refer to this Guide during the hazard analysis process and AJHA development.

A detailed flow diagram with the required elements for executing the job hazard analysis process is included as [Figure 1](#) and [Figure 2](#).

This document supports implementation of ISMS Core Function #2 “Identify and Analyze the Hazards”, Core Function #3 “Develop and Implement Hazard and Environmental Controls” and Guiding Principle #6 “Hazard Controls Tailored to Work Being Performed”.

2.0 SCOPE

This Level 2 Management Control Procedure applies to the analysis of task-specific hazards which may be encountered during the execution of maintenance, operations, construction, decontamination and decommissioning (D&D), surveillance, training, performance exercises, and environmental remediation work. This procedure applies to work performed by Mission Support Alliance (MSA) employees and MSA subcontractors and lower tier subcontractors, whose personnel are required to perform work on site. The job hazard analysis requirements in this procedure apply to the development of work instructions, procedures, safety plans, or other documents that prescribe specific actions for performing these activities.

Job Hazard Analysis

The responsibility for identifying hazards and determining controls for all work activities within the scope of this procedure shall be clearly established for work that involves MSA workers and other Hanford contractors. In such cases the interface with other DOE prime contractors will be managed in accordance with MSC-PRO-45821, *MSA Inter-Contractor Work Order Process*, [MSC-MP-47124](#), *Inter-Contractor Work Control*, and through Memorandums of Agreement.

This procedure does not apply to vendors/subcontractors performing work on-site that are procured/ acquired through the Supply Ordering System (SOS) process. The requirements of this procedure shall be passed through to subcontractors as a part of the contract requisition process for all other contracted work performed on site (i.e., work performed under contract). Refer to Appendix C for specific job hazard analysis requirements for construction subcontractors performing work managed by the MSA on the Hanford Site.

MSC-MP-32219, “*MSA Worker Safety and Health Program*” points out that the Occupational Safety and Health Administration (OSHA) and Consensus Standards create vertical standards that were not intended to directly apply to organizations like the Hanford Patrol and Hanford Fire Department. These departments, under MSA, utilize Integrated Safety Management System (ISMS) Core Functions and Guiding Principles along with a variety of tailored safety programs to ensure their workers’ safety. These processes are consistent with industry training and tactical practices for hazard identification, risk evaluation and mitigation during operations, training, drills, and exercises. The Hanford Patrol and Fire Departments continue to identify and mitigate hazards and risks to acceptable levels while performing activities that enable them to address their missions of meeting and defeating the Graded Security Plan [GSP applies only to Hanford Patrol] and other emergencies. These established processes provide an equivalent method of meeting the purpose and intent of this procedure.

2.1 IMPLEMENTATION

This procedure is effective upon publication. This procedure shall be implemented by all MSC organizations as prescribed here in. The requirements of this procedure shall be implemented as a part of the work planning requirements specified in MSC-PRO-12115 “Work Management” and as a part of the development of procedures that prescribe work activities in accordance with MSC-PRO-589. Completed job hazard analyses developed using methods not consistent with this procedure for work still scheduled to be performed, shall be reviewed and made compliant prior to the start of that work.

All level 3 work control procedures that establish job hazard analysis process requirements shall be reviewed by the interpretive authority (IA) of MSC-PRO-079. It is the responsibility of the author of any such level 3 work control procedure/instruction to obtain this review. The document review/approval sheet shall indicate that it has been reviewed by the IA of MSC-PRO-079. Any deviation from the job hazard analysis process as prescribed in this procedure shall be submitted to Mission Assurance – Safety and Health for review, approval, and reconciliation in this procedure. Any hazard analysis tool / method other than AJHA used for analyzing work hazards related to work determined to be beyond skill based, other than subcontracted

Job Hazard Analysis

construction work, must be prescribed in a Level 3 MSC procedure / instruction and approved by the Technical Authority/Subject Matter Expert for MSC-PRO-079.

If a level 3 document is deemed necessary to support the unique work control and / or job hazard analysis needs of an implementing organization, the Job hazard analysis requirements prescribed here in shall be referenced and appropriately addressed in such level 3 implementing procedures and desk instructions. Such a reference may simply indicate that the requirements of MSC-PRO-079 apply to the work scope as prescribed there in, or may specify additional detail unique for implementing the job hazard analysis requirements for that work scope. Additional specific job hazard analysis implementation details shall be consistent with the requirements of MSC-PRO-079.

2.2 General Hazard Analysis (GHA) and Craft Specific Hazard Analysis (CSHA)

The GHA and CSHA documents are developed to establish the control measures for hazards common to the core activities of the workers' assigned job position. The scope of the general or craft specific hazard analysis must be limited to hazards that the worker can reasonably be expected to recognize and know how to mitigate based on the fundamental knowledge and training requirements of his or her job assignment. The use of the GHA and CSHA method of hazard analysis is limited to work referred to as "Skill Based" as determined in Appendix B. As a minimum each GHA and CSHA document must include the scope to which it applies, the hazards addressed and the control measures for those hazards. These documents shall also identify any limitations associated with the hazards listed that would drive the activity beyond skill based. MSA-1200369 has been developed as the MSA General Hazard Analysis. Routine work is not necessarily "skill based" work. If any of the criteria in Appendix B apply, the work is not skill based work even if it is routinely performed.

The CSHA documents shall as a minimum include the review/participation of:

- A representative of the applicable craft union (e.g., HAMTC, HGU, Building Trades, etc.),
- MSA Safety and Health field representative,
- Line Management of the performing organization (i.e., management of the employees working to the CSHA documents), and
- The technical authority of this Level 2 procedure.

The initial version and revisions to the CSHA documents shall be released in accordance with MSC-PRO-8635 "Review and Approval of Technical Documents". A documented review of the CSHA document shall be performed bi-annually or more frequently as needed.

Job Hazard Analysis

2.3 Standing Automated Job Hazard Analysis (Standing AJHA)

Work activities with hazards beyond skill based shall be evaluated using the Automated Job Hazard Analysis system as described below. A specific work scope or activity may exist which involves more significant hazards, i.e., is beyond skill based, and yet is performed routinely. The intent is to write the Standing AJHA for as narrow a scope of work as practical, and identify the hazards that can reasonably be expected to be encountered during the conduct of this work, and the specific controls necessary and sufficient to mitigate each hazard identified. The intent is NOT to write a Standing AJHA which includes every hazard which could possibly exist, and the accompanying controls. Such an approach is NOT acceptable, as it leads to a hazard evaluation document that is not specific, is unwieldy, and therefore much less useful / acceptable for the purpose of informing the FWS and workers of the hazards and controls associated with the proposed activity.

The following criteria apply to development of a Standing JHA:

- The scope of the work / activity must be adequately developed, such that potential hazards are identified based on that described scope of work / activity (i.e., not a general category of skill based work). The roles of all of the workers involved (by discipline) should be included in the supporting description of the scope.
- Those hazards that can reasonably be expected to be encountered during the conduct of this work over time, and only those hazards, are identified.
- The specific controls necessary and sufficient to mitigate each hazard are specified. The AJHA should reproduce direction provided in other procedures as necessary, such that it “stands alone”. In general, it is not appropriate to send the reader (the worker) off to another procedure determine what controls are needed and when they apply. It is acceptable to mention another document as a reference for “how to” information such as the manufacturers’ instructions, etc.
- If training and qualification requirements are required, the specific training courses / qualification records needed should be cited.

2.4 Specific Hazard Analysis Using the Automated Job Hazard Analysis (AJHA) Tool

An Activity-based hazard analysis using the Automated Job Hazard Analysis (AJHA) is an analysis of associated hazards within a particular job or task. The analysis assesses each aspect (step) of a task and addresses the items which could result in an injury to an individual by focusing on the relationship between the worker, the task, the tools, and the work environment. This involves an evaluation of the mechanics of any operation, identifying what can go wrong, and how to do it safely (i.e., controls). In contrast to a “Standing” AJHA an exclusive job hazard analysis using the AJHA tool should be prepared for each work activity that is a unique evolution of work where the work environment, tools, equipment, or materials introduce new hazards or where the work process itself involves hazards beyond those determined to be skill based.

Job Hazard Analysis

3.0 RESPONSIBILITIES WITHIN THE JOB HAZARDS ANALYSIS PROCESS

3.1 Interpretive Authority (IA)

- Interface with the Technical Discipline Subject Matter Experts (SME) to establish the technical requirements and regulations that will apply to the hazard analysis process.
- Resolve disputes between technical disciplines SMEs during an AJHA session. Resolution may require research and/or outside expertise. Document results in AJHA or related work documents.
- Analyze lessons learned for programmatic opportunities for improvement.
- Perform a technical review of the AJHA system (topical area screens) to ensure content is current with MSC requirements when requested by AJHA Administration or AJHA users.
- Attend AJHA Users Group session upon request to resolve AJHA content concerns or addresses proposed changes.

3.2 AJHA Coordinator

Coordinator includes: planners, procedure writers and responsible Technical Authorities.

- May assist the Field Work Supervisor (FWS) in determining the hazard analysis needed for a particular work activity.
- Schedule and facilitate field walk-down(s) and hazard analysis with the Work Planning Team.
- Gather baseline documents, supporting documents, and references.
- Incorporate applicable work history, feedback, and lessons learned into initial hazard identification.
- Develop draft work instructions into discrete steps or tasks to facilitate critical planning and hazard analysis with input from the Work Planning Team.
- Review applicable work history and lessons learned for incorporation into work scope, hazard identification and work instructions.
- Analyze the sequence of work activities, work area conditions, and equipment required to safely accomplish the defined work scope.
- Document work site reviews and walk-down notes/information for inclusion into the AJHA and for Work Planning Team reviews.
- Initiate the job hazard analysis process and complete an initial assessment of potential hazards for implementation of appropriate controls.

Job Hazard Analysis

- Consult with, and obtain support from, workers and Technical Discipline SMEs (e.g., Rad Work Planner, Safety Professional, Environmental Professional), as appropriate, to confirm working conditions, hazards, and constraints.
- Incorporate results of the SMEs hazards analysis into the AJHA application.
- Resolve SME conflicts with work instructions and hazard controls.
- Upon approval by all required SMEs, finalize the AJHA and assign the final completed status designation.
- List all AJHA Team participants in the AJHA Involvement screen.
- Incorporate hazard controls into the applicable work instructions or procedures applying a graded approach.

3.3 Technical Discipline SME

SMEs are individuals who are identified by management. These individuals are qualified or who have previous experience (e.g., Industrial Safety, Industrial Hygiene, Nuclear Safety Professional, etc.) performing particular tasks. SMEs may also be individuals who by education, training, and/or experience are recognized expert on a particular subject, topic, or system. SMEs are used in professional or technical functions where their acquired knowledge and skills, in a particular field or subject, may be helpful in providing interpretive expertise, fact finding, problem solving, or understanding of a situation.

- Analyze lessons learned for improvement opportunities.
- Conduct the hazard identification and analysis for the defined activity within scope of their discipline as part of the AJHA team.
- Serve as a technical resource for requirements and regulations.
- Complete Specific Analysis actions for identified hazards during completion of an AJHA and select or add controls as appropriate.
- Assist in identifying and analyzing workplace hazards and selecting and approving controls.
- Determine the need for and provide activity-specific details during selection of job hazard analysis controls. Use the “details” and “comments” sections of AJHA to clearly detail the specific hazard statements and controls type requirements specific to the defined task or step.
- Prepare forms/permits as required that are within the technical scope of their SME discipline.
- Identify the hazard controls that must be incorporated into the work instructions.
- Review the AJHA to ensure that the controls specified for each hazard are complete and that all controls taken together do not conflict.

Job Hazard Analysis

- Approve the AJHA after assuring all hazards and controls within their discipline are appropriate for the task and not in conflict with other mitigating actions.
- Document rationale and/or complete calculations as needed to record the basis of the hazard controls selected.

3.4 Work Planning Team (WPT)

- Conduct walk-downs of the proposed activity. Document Walk-Down notes and observations for inclusion in the AJHA.
- Provide input on work instructions, sequence of work steps, and hazard controls to safely and efficiently perform the work.
- Identify needed resources to perform the work, including support organizations.
- Identify and integrate applicable technical and administrative requirements into the work instructions.
- Determine the need for and provide activity-specific details (beyond skill-based) during selection of job hazard analysis controls.
- Identify applicable health monitoring controls.
- Establish acceptance/performance criteria to verify completion of work.
- Ensure work instructions can be easily understood and effectively used (user friendly) by those who perform work.
- Ensure that appropriate controls have been incorporated in work instructions.
- Concur with the hazard controls that must be incorporated into the work instructions.

3.5 A Worker Representative

- Participate in the hazard analysis determination process for Skill-Based work, and the AJHA Process when requested.
- Participate in the identification of the best tools, methods, work practices, and special material requirements for the proposed work.
- Participate in the development of the CSHA applicable to the work they perform,
- Participate in workability reviews and walk-downs to ensure the work scope is understood, existing hazards are appropriately controlled, and the work instructions can be performed safely as written.
- Review the GHA and CSHA documents pertaining to their individual craft, and provide input for change as requested by your Hanford Atomic Metal Trades Council (HAMTC) stewards.
- Support Field Work Supervisors in conducting Worksite Hazard Analysis prior to commencing work for skill-based work activities.

Job Hazard Analysis

- Provide feedback on work performed, both negative and positive, in support of continuous improvement processes.

3.6 Field Work Supervisor (FWS)

- Support the planning team in the development process of the hazard analysis and work packages.
- Ensure the appropriate level of hazard analysis has been performed and documented for the work activities performed.
- Review the GHA and CSHA documents with their personnel and as an aid in determination of skill-based work activities. The GHA and CSHA documents can also be used for safety or tailgate meetings as a reminder of daily hazards your personnel face, and as a base-line hazard analysis document to support content selections in the Employee Job Task Analysis (EJTA) and the Integrated Training Matrix (ITEM).
- Communicate to affected workers the scope of work, and the hazards, requirements, and controls for the work to be performed (e.g., pre-job briefing).
- Ensure the Staffing, Training, Notifications, and Advance Action control measures are implemented prior to start of work.
- Ensure workers are provided with time to become familiar with the contents of the technical work instructions prior to starting the job.
- Ensure workers are trained and qualified to perform work.
- Ensure workers are medically qualified and assigned to any medical monitoring program for the work.
- Ensure coordination of prerequisites, work environment, reference documents, tools and materials for performance of the work.
- Ensure previously approved Personal Protective Equipment (PPE) for like activities is available and worn.
- Ensure the work site is evaluated to confirm the hazards are sufficiently controlled, the hazard analysis is current and is still relevant when the work commences,
- Conduct pre-job briefings.
- Solicit feedback on work performed, both positive and negative.

3.7 Technical Authority for MSC-PRO-079, *Job Hazard Analysis*

- Provide oversight of development and use of the GHA, CSHA, and AJHA documents in accordance with this procedure.
- Coordinate with MSA Technical Authorities on input into the AJHA application.

Job Hazard Analysis

- Coordinate with TAs and SMEs for input on training requirements associated with the Hazard Control.
- Co-Chair the AJHA Users Group monthly meetings.
- Maintain MSC-PRO-079 and MSC-GD-17132 documents.
- Approve the use of alternate hazard analysis methods specified in statements of work for subcontractors, or in Level 3 MSC procedures.

3.8 Union Safety Representatives:

- Assist with the development of the CSHA documents.
- Coordinate the review of draft CSHA documents with the HAMTC Craft Stewards for review, input, and confirmation of content for each craft specific hazard analysis CSHA document.
- Represent their respective union at the AJHA Users Group Monthly meetings.

3.9 Union Craft Stewards:

- In support of the CSHA, solicit input from their members, review, and confirm content of the CSHA documents.

3.10 Validation Authority:

- Support the preparation of the job hazard analysis.
- Provide input on work instructions, sequence of work steps, and hazard controls to safely and efficiently perform the work.
- Consult with, and obtain support from, workers and Technical Discipline SMEs (e.g., Rad Work Planner, Safety Professional, Environmental Professional), as appropriate, to confirm working conditions, hazards, and constraints.

3.11 Management:

- Designate a single person with responsibility to lead the AJHA working session (i.e., an AJHA Session Leader). The person designated will approve the AJHA using the additional approvals on the AJHA “Print Reports” screen.
- Ensure a single individual is designated with overall authority for approving the content of each AJHA (i.e., an AJHA Approver). The person designated will approve the AJHA using the additional approvals on the AJHA “Print Reports” screen.
- Periodically confirm the individuals in their organization assigned to support the job hazard analysis process as a SME are qualified and those qualifications are current for his or her assigned specific SME discipline.

Job Hazard Analysis

- Work with the HAMTC, HGU, or Construction Safety Representatives to develop the CSHA documents for each job assignment under the respective union.
- Assure CSHA documents used by their organizations are compliant with the scope and implementation requirements as specified in this procedure.
- Assure workers become and remain familiar with the CSHA covering the work they perform.

3.12 AJHA Session Leader

- Attend and lead the AJHA working session,
- Communicate the work scope, field conditions, and hazard analysis responsibilities to all participants.

3.13 AJHA Approver

- Approve the AJHA for compliance, scope, content, and accuracy.

NOTE: *The AJHA Session Leader and the AJHA Approver may or may not be the same individual as assigned at management discretion.*

4.0 REQUIREMENTS

NOTE: *For the tables in this section under the requirement “type” column, “V” means verbatim, and “I” means interpreted.*

#	Requirement	Type V or I	Source
1.	Ensure managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.	V	10 CFR 830.122 Criterion 9
2.	Perform routine job activity-level hazards analysis.	V	10 CFR 851.21 Section (a)(6)
3.	a. Hazards analysis for skill based work may be documented through use of the MSC General Industrial Hazard Analysis (GHA), and/or Craft Specific Hazard Analysis (CSHA), or the Web Automated Job Hazard Analysis (AJHA) tool. The CSHA and GHA documents do NOT apply to subcontracted construction work. b. For all work determined to be beyond skill based, The Web Automated Job Hazard Analysis (AJHA) tool or the Site form A-6004-280 Job-Specific Analysis/Activity Hazard analysis (K-2 JSA/AHA) for construction	I	10 CFR 851.21 Section (a)(5)(6)

NOTE: *Before each use, check MSC Docs Online to ensure this copy is current.*

Job Hazard Analysis

MSC-PRO-079, Rev. 10

Effective Date: September 30, 2014

Page 12 of 36

#	Requirement	Type V or I	Source
	subcontracts only) shall be routinely performed at the activity level. The resulting job hazard analysis shall be for a specific work evolution, and not for a broad general category of work. The appropriate application of a "Standing AJHA" is described in sections 2.3 and 5.3 of this procedure.		
4.	Based on the criteria in Appendix B, Initial Hazard Analysis Determination Criteria, determine if the work is Skill-Based. When the work meets any of the criteria outlined in Appendix B, the hazards shall be analyzed and documented using a thorough and systematic hazard analysis process such as is implemented through the Automated Job Hazard Analysis (AJHA) tool.	I	10 CFR 851.21 Section (a)
5.	Document assessment for chemical, physical, biological, and safety workplace hazards using recognized exposure assessment and testing methodologies and accredited and certified laboratories.	V	10 CFR 851.21 Section(a) Para 2
6.	Evaluate operations, procedures, and facilities to identify workplace hazards.	V	10 CFR 851.21 (a)(5)
7.	Review site safety and health experience information and consider interaction between workplace hazards and other hazards such as radiological hazards.	V	10 CFR 851 (a)(7)(8)
8.	For hazards identified either in the facility design or during the development of procedures, controls must be incorporated in the appropriate facility design or procedure.	V	10 CFR 851.22 Section (a) (1)
9.	Train and qualify personnel to be capable of performing their assigned work. Provide continuing training to personnel to maintain their job proficiency.	V	10 CFR 830.122(b)(1)(2)
10.	Provide training and information to workers who have worker safety responsibilities that is necessary for them to carry out those responsibilities.	V	10 CFR 851.25(c)

Job Hazard Analysis

MSC-PRO-079, Rev. 10

Effective Date: September 30, 2014

Page 13 of 36

#	Requirement	Type V or I	Source
11.	<p>The following training shall be completed by employees as required here based on the following roles and responsibilities:</p> <ul style="list-style-type: none"> All employees with the ability to create or update an AJHA, shall complete Site Training Course No. 172703 (<i>The Web Based AJHA Tool</i>). All employees' assigned Subject Matter Expert responsibilities shall complete Course No. 172707 (<i>Hazard Review for Subject Matter Experts and Technical Authorities</i>). Radiation Work Permit (RWP) Preparers shall complete Course No. 172708 (<i>Using the Web Rad Work Permit Database</i>). Course No. 172706 (<i>Use of the Feedback Database</i>) is recommended for all employees. All employees assigned as SMEs and IA involved in the evaluation of work activities / hazard analysis shall read MSC-PRO-079 "Job Hazard Analysis and MSC-GD-17132 "Automated Job Hazard Analysis Process Guide" 	I	<p>10 CFR 830.122 (b)(1)(2);</p> <p>10 CFR 851.25(c)</p>
12.	Involve workers and their elected representatives in the development of the worker safety and health program goals, objectives, and performance measures and in the identification and control of hazards in the work place.	V	10 CFR 851.20.(a)(4)
13.	Identify existing and potential workplace hazards.	V	10 CFR 851.21.(a)
14.	<p>Select controls based on the following hierarchy:</p> <ol style="list-style-type: none"> Elimination or substitution of the hazards where feasible and appropriate; Engineering controls where feasible and appropriate; Work practices and administrative controls that limit worker exposures; and Personal protective equipment. 	V	10 CFR 851.22.(b)
15.	Ensure that all identified and potential hazards are prevented or abated in a timely manner. Prioritize and implement abatement actions according to the risk to the workers.	V	10 CFR 851.22. (a)(2)(i)
16.	Report hazards not previously identified or evaluated.	V	10 CFR 851 Appendix A

Job Hazard Analysis

MSC-PRO-079, Rev. 10

Effective Date: September 30, 2014

Page 14 of 36

#	Requirement	Type V or I	Source
17.	<p>A Standing AJHA shall be reviewed and revised as needed: At least every 12 months, unless otherwise driven by the associated procedure review due date. When developed to supplement a technical procedure, at a frequency to correspond with the periodic review date for that procedure. When developed to support radiological work, at a frequency to correspond with the periodic review date for related radiological work documents. When an inactivated procedure is reactivated. When the hazards of the work change. When there is a significant change in the work environment. When new equipment or tools are introduced. When revised work instructions or process steps are implemented that may affect the performance of safe work. When the work activity/task results in an accident, near miss, or issuance of a formal lesson learned. When hazard controls are determined to be no longer effective. <i>Reviews may be documented by using the Activity Notes function in the AJHA application or creating a formal revision of the Standing AJHA.</i></p> <p>NOTE: Refer to definition of Standing AJHA, located in Appendix A.</p>	I	OA-50 Inspection of ES&H at the Hanford Site, February 2002

Job Hazard Analysis

5.0 PROCESS

5.1 Review the Work Scope and Work Site

NOTE: [Figure 1](#) and [Figure 2](#) will aid the User in following these Process Steps.

Actionee	Step	Action
AJHA Coordinator, Validation Authority, supervisor, trainer, Workers and SMEs.	1.	Review the work/training scope to ensure it is adequately defined.
	2.	Define the work/training scope to a level of detail that facilitates the identification of health and safety hazards and environmental impacts prior to starting the job hazard analysis process.
	3.	Determine the work site conditions to assure hazards introduced by the conditions where the work will be performed are addressed.
	4.	Consider relevant operating experience information from the OPEShare.doe.gov website and AHHA Feedback database..

5.2 Conduct Hazard Analysis

5.2.1 Initial Hazard Analysis

The hazards shall be identified and analyzed and the control measures identified for all work. Once the scope of an activity has been established the responsible person (see actionee listing) shall determine the method of hazard analysis and job hazard analysis documentation requirements. This determination will result in a decision to perform and document a detailed hazard analysis as prescribed in section 5.2.2 of this procedure or to analyze the hazards using a less rigorous approach, documenting the hazard analysis as best suited for the nature of the activity (e.g. General or Craft Specific Hazard Analysis, Job Safety Analysis, Safety Plan, Job Task Analysis, etc.). Even when it is determined that work hazards can be analyzed with a less rigorous process, the AJHA system may still be used to perform and document the hazard analysis.

The hazards and controls identified in the General Hazard Analysis (GHA) and Craft Specific Hazard Analysis (CSHA) documents may suffice as the hazard analysis when the job has been determined to be Skill-based work in accordance with [Appendix B](#) of this procedure. Each craft specific hazard analysis document addresses only the hazards and controls associated with the routine activities of the craft listed. Refer to [Appendix A](#), for the definitions of [Craft Specific Hazard Analysis](#) and [General Hazard Analysis](#).

Job Hazard Analysis

MSC-PRO-079, Rev. 10

Effective Date: September 30, 2014

Page 16 of 36

Actionee	Step	Action
AJHA Coordinator, Validation Authority, supervisor, trainer, Workers and / or SMEs involved.	1.	Review the work to determine/identify the hazards for the specific activity. This may include determining if any of the hazards identified as a part of the Industrial Hygiene Baseline Hazard Assessments (IHBHA) or other hazard characterization documents will be encountered during the work. (See MSC-PRO-17916 'Industrial Hygiene Baseline Hazard Assessments'). Contact the facility manager/POC or assigned Industrial Hygienist to obtain a copy of the IHBHA.
	2.	Compare/evaluate the identified hazards against the criteria outlined in Appendix B "Initial Hazard Analysis Determination Criteria", to assist the Field Work Supervisor with determining if the hazard analysis of the work requires using the Automated Job Hazard Analysis (AJHA) tool.
	3.	If the identified hazards are within the criteria outlined in Appendix B , (i.e., "Skill based): <ol style="list-style-type: none"> Record the hazards and controls in a document as appropriate for the activity (e.g. JSA, Safety Plan, Task Safety Analysis, etc.), and Document the decision that the work does NOT require using the AJHA tool (i.e., is Skill Based Work). This decision must clearly identify the outcome of the decision and, the person that made the decision, and be made available to the workers. This decision should be a collaborative effort including management, the Design, Safety and Health subject matter experts, and the workers. However only one signature is required to document this decision. It is the responsibility of the signatory to consult with representatives from Design, Safety and Health and the workers when making this determination.

The following are some examples of appropriate documentation for b. above: Other methods of documentation may be used to meet this requirement.

- A signature block on a work document that indicates the task decision was based on the Hazard Analysis Determination Criteria for Skill-Based work outlined in [Appendix B](#).
- Using the selection box designated for this purpose (such as Skill-Based, AJHA required, etc.) with signature, in the CMMS job control system. Procedures may document the Skill-Based decision within the procedure or on paperwork associated with procedure changes. Either would include approval signatures that would also attest to meeting the criteria outlined in [Appendix B](#).
- Duplication of [Appendix B](#) with Specific activity, signature block and date added.
- Craft Specific hazard analysis documents with specific activity, a

Job Hazard Analysis

Actionee	Step	Action
		signature block, and date added.
		<ul style="list-style-type: none"> A signature and date recorded with the statement “<i>This activity has been evaluated and has been determined to meet the criteria in MSC-PRO-079, Appendix B</i>” on any document that records the hazard analysis for that activity (e.g. CSA, GHA, JSA, Safety Plan, Task Safety Analysis, etc.) Training plans, Training Activity Sheet (TAS), Lesson Plans, or Training Safety Plans.
AJHA Team	4.	If the identified hazards exceed the Skill-Based criteria outlined in Appendix B use the AJHA as prescribed in section 5.2.2 or Appendix C for subcontracted construction work. If any hazard analysis tool / method is used, other than AJHA, it must be prescribed in a Level 3 MSC procedures / instruction and approved by the Technical Authority/Subject Matter Expert for MSC-PRO-079.

5.2.2 Detailed Hazard Analysis Using the Automated Job Hazard Analysis (AJHA) Tool

The following elements must be considered during the hazard analysis determination process:

- Where is the job happening? What is the work environment? What activities and environment are adjacent to the work?
- What are the task demands on the worker and what are the individual’s capabilities?
- What are the critical steps in the tasks?
- What can go wrong (include contingent events)?
- Will the equipment be used outside of the designed operating limits during the work?
- Could a lack of proper maintenance cause an equipment failure during the work? What are the consequences?
- Consider the following hazards:
 - Striking against or being struck by an object
 - Getting caught in or between objects
 - Use of tools, machines, or equipment
 - Potential exposure to hazardous materials (e.g., beryllium exposure - If the work is to be performed in an area that is posted as having potential beryllium contamination, an industrial hygienist needs to be contacted to ensure that a beryllium exposure assessment has been performed that covers this task.)
 - Potential exposure to hazardous energy sources
 - Working from elevations

Job Hazard Analysis

- Lifting, pushing, pulling motions
- Housekeeping
- Adjacent work activities

The use of the AJHA ensures a systematic evaluation of those hazards and conditions that are often subject to requirements that are not always apparent to personnel that have not been specifically trained to evaluate for those requirements.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Designated AJHA Session Leader (May be a coordinator, manager, FWS, or other responsible person as designated by mgt.)	1.	Ensure the following at the start of the AJHA session: <ul style="list-style-type: none"> • The work scope being analyzed is adequately identified/described, • To the extent possible the field conditions are known, • The right participants are either present or have otherwise presented his or her contribution. (<i>Determine if participation is sufficient to continue with the AJHA working session</i>) • Participants understand the work scope, field conditions, and their hazard analysis roles and responsibilities, • Set the tone and expectation of the session overall.
AJHA Coordinator, Validation Authority, supervisor, or trainer, (Workers and SMEs involved as needed).	2.	Assist in assuring effective completion of JHA sessions.
	3.	Begin preliminary hazard identification screening.
	4.	Identify hazards, exposures, or constraints (include interfacing hazards and co-located work impacts) based on known and expected site conditions, and potential for changing conditions.
	5.	Participate in an appropriate level of assessment of the work process to understand the extent of potential hazards and environmental or location factors that may influence safety.
	6.	Consult with and obtain support from workers and appropriate Technical Discipline SMEs , such as Rad Work Planner, Safety Professional, and Environmental Professional to confirm working conditions, hazards, and constraints.
	7.	Review applicable work history, feedback and lessons learned, and other work documents including a previous AJHA if available, in the initial hazard identification.

Job Hazard Analysis

Actionee	Step	Action
	8.	Identify the technical requirements and regulations that will apply to the hazard analysis.
	9.	Determine if equipment, materials and special tools, or environmental conditions could introduce new hazards.
	10.	Conduct worksite review/walk-down in the area where the activity will be conducted to review site conditions and adjacent activities for any potential hazards.
	<p>NOTE: Refer to the definition of “worksite review” located in the Appendix A, Glossary.</p>	
AJHA Coordinator	11.	Notify potential AJHA team members of the scheduled AJHA Team Meeting and coordinate the team meetings, based on preliminary hazard identification screening results. Notification should include proposed work scope, draft work instructions or procedure, and AJHA number. The intent of this action is to provide AJHA team members the opportunity to review any preliminary hazard screening AJHA and help the team members be prepared to provide individual input at the team meeting (e.g., SMEs early review of Specific Analysis requirements etc.)
Subject Matter Experts	12.	<p>To the extent possible, prior to convening the AJHA Team meeting, perform required SME analysis and enter hazard comments, control details, new user added controls as needed. SME field notes, calculations, rationale, etc. as needed are recorded using the SME notes function of the AJHA. The SME notes shall include a sufficient record of the analyses performed to clearly justify the control measures identified. SME notes may include the analysis details or note that more detailed analysis documentation is attached using the “Forms” screen in the AJHA. SME notes, attached assessment documentation, or control details shall clearly associate the chemical, physical, biological and/or safety workplace hazards to the specific analysis performed to evaluate that hazard.</p> <p>For example:</p> <ul style="list-style-type: none"> When the hazard “Significant Noise” is identified, sufficient basis for the hazard controls shall be included or referenced in the AJHA such as a noise survey, postings, or other information. When the hazard “Roof work/access” is identified, the specific assessment that qualifies the roof to hold the additional load it must sustain during the work activity shall be included or referenced in the AJHA.

Job Hazard Analysis

MSC-PRO-079, Rev. 10

Effective Date: September 30, 2014

Page 20 of 36

Actionee	Step	Action
AJHA Coordinator	13.	<p>Convene the AJHA Team meeting and complete the new AJHA.</p> <ul style="list-style-type: none"> During the AJHA Team meeting, review the work scope, any walk down results, and the hazards and control detail screens. Required forms and permits can also be discussed during the meeting. Completion of AJHA screens for controls, forms and permits, and sign-offs can be performed outside of the AJHA Team meeting using appropriate SME input. For efficiency and effectiveness it is recommended that the work planning team complete as much of the AJHA, including forms/permits and required SME analysis, as possible before convening the AJHA Team meeting.
AJHA Team	14.	Review job task(s) and requirements and summarize in the Task Information screen of the AJHA. Assure the hazard analysis is applied to a task specific activity. Broad or generic work activities such as “painting” or “steel erection” shall be individually analyzed for each instance of work.
	15.	Discuss and analyze the hazards identified in the Initiated AJHA during the preliminary analysis (Hazards Preliminary screen and Hazards and Control Details screens). <i>Hazards and controls specifically associated with the activity listed in other documents (such as MSDS), forms, and/or permits need to be integrated into the AJHA process.</i>
	16.	Discuss results of the completed Specific Analysis actions.
	17.	Finalize the selection of controls, control details, and application of the controls to the appropriate activity specific task.
	18.	Identify potential contingencies and related actions or controls. (e.g., spill response/mitigation, fall arrest extraction provisions, confined space emergency extraction, etc.)
	19.	Use technical disciplines as a resource for requirements and regulations. The SMEs and other Technical Disciplines review the identified hazards and controls for accuracy, and potential conflicts.
TA	20.	Resolve disputes which may arise between technical disciplines during an AJHA session.
AJHA Team	21.	Document the results of research and/or discussions leading to resolution of the conflict in the AJHA or related work documents.

Job Hazard Analysis

MSC-PRO-079, Rev. 10

Effective Date: September 30, 2014

Page 21 of 36

Actionee	Step	Action
SMEs and other Technical Disciplines	22.	Prepare forms/permits as required.
AJHA Team	23.	Document approval by all required Technical Disciplines (refer to Involvement screen of the AJHA tool).
	24.	Finalize AJHA (finalize screen) and assign the final completed status designation.
	25.	Integrate identified hazard controls identified into work instructions, procedures or appropriate work documents using a graded approach . (For work management documents, refer to MSC-PRO-12115 Section 5.3)
	26.	Communicate to affected workers the scope of work, and the hazards, requirements, and controls for the work to be performed (e.g., pre-job briefing). Ensure the training, notifications, Advanced Action control measures are implemented prior to start of work.
Workers	27.	Participate in the hazard analysis. Workers review the hazards and controls in the GHA, CSHA and JHA documents and work within the hazard controls identified in work procedures and instructions, pre-job briefings, job hazard analysis, GHA and CSHA documents.
AJHA Session Leader, AJHA Approver, Subject Matter Experts	28.	<p>SMEs Approve the AJHA as designated in the Involvements screen. AJHA Session Leader and AJHA Approval Authority (may or may not be the same person) approve the AJHA using the Additional Approvals in the AJHA Reports Screen.</p> <p>NOTE: <i>The role and name is to be entered (e.g. AJHA Session Leader/AJHA Approval Authority, Joe Smoe) and a hand-written signature added to the hard copy.</i></p>
Management	29.	Ensure that technical procedures incorporate the results of an effective hazard analysis (AJHA), using the graded approach and that periodic JHA-based Management Assessments are performed.
Field Work Supervisor	30.	Evaluate the work site to confirm the hazards are sufficiently controlled; the hazard analysis is current and is still relevant when the work commences.

Job Hazard Analysis

Actionee	Step	Action
AJHA Team	31.	When the job has been completed, add changes that are identified and approved in the field to the completed job hazard analysis (AJHA) document, such as an unexpected hazard or hazard control modification via approved field changes.

Changes to the hazard analysis document can be added as approved, or be done after the particular work activity is completed using a graded approach.

NOTE 1: *All changes may not be needed in the AJHA, just those changes in hazards or controls. This provides an accurate picture of the hazards and controls for a specific activity and provides a feedback loop to provide continuous improvement for similar work in the future.*

NOTE 2: *Changes to hazards or controls from approved and documented field changes with SME input can be implemented in the field without suspending work and prior to addition to the AJHA. However, these changes should then be made to the AJHA in a timely manner.*

5.3 Review of Standing AJHA

Actionee	Step	Action
AJHA Coordinator, Validation Authority, or PIC/ Field Work Supervisor.	1.	When a Standing AJHA is used, review the work scope and the site where the work is to be performed to ensure that the information in the AJHA accurately reflects the current work conditions.
	2.	When an AJHA already exists for the work, identify the AJHA and verify its appropriateness to the task / work scope.
AJHA Coordinator	3.	Initiate a revision or clone of the AJHA if necessary based on changing hazards/conditions/requirements, then proceed through the normal completion process.

Job Hazard Analysis

Actionee	Step	Action
PIC / Field Work Supervisor	4.	Evaluate the field conditions immediately prior to starting each work evolution. Apply any field or pre-job briefing changes to the AJHA based on existing field conditions. See Sections 4.8.5 and 4.9.6 in the Guidance Document, MSC-GD-17132, for guidance on making field/pre-job changes to a Standing AJHA.

A formal revision/clone of the AJHA is not performed in this case, unless it is apparent that the field change would be needed for this work in all/most cases in the future. THOSE SECTIONS don't apply unless they are sections in the AJHA.

5. Apply the existing, revised/cloned, or field-modified AJHA to the work.

NOTE: Refer to definition of Standing AJHA, located in [Appendix A](#).

AJHA
Coordinator,
Validation
Authority,

6. Review and revise Standing AJHA as needed:
 - When developed to supplement a technical procedure, at a frequency to correspond with the periodic review date for that procedure.
 - When an inactivated procedure is reactivated.
 - When the [hazards](#) of the work change.
 - When there is a significant change in the work environment.
 - When new equipment or tools are introduced.
 - When revised work instructions or process steps are implemented that may affect the performance of safe work.
 - When the work activity/task results in an accident, near miss, or issuance of a formal lesson learned.
 - When hazard controls are determined to be no longer effective.

At least every 12 months, unless otherwise driven by the associated procedure review due date.

 - Reviews may be documented by using the Activity Notes function in the AJHA application or creating a formal revision of the Standing AJHA.

6.0 FORMS

[A-6004-280](#), Job Safety Analysis/Activity Hazard Analysis (K-2 JSA/AHA)
[A-6004-279](#), Task-Specific Job Safety Analysis (K-3 JSA)

Job Hazard Analysis

7.0 RECORD IDENTIFICATION

Records shall be managed in accordance with MSC-PRO-10588, *Records Management Processes*.

Records Capture Table

Name of Document	Submittal Responsibility	Retention Responsibility
Craft Specific Hazard Analysis (CSHA)	Management of the Performing Organization	Record copy retained in IDMS. Working copies available online.
Automated Job Hazard Analysis (AJHA) Report (Hard Copy)	Field Work Supervisor/ Procedure Technical Authority	Record copy retained in with the document that originated the work. If associated with a work package, retained in the work package. If associated with facility-approved procedures performed without a work package, facility retention until no longer needed, then retire to Records Holding Area (RHA) in accordance with RIDS.
Job Hazard Analysis (JHA), Site form A-6004-280 Job-Specific Analysis/Activity Hazard Analysis (K-2 JSA/AHA), Safety Plan	Field Work Supervisor, Procedure Technical Authority, Trainer	Record copy retained with the document that originated the work, work package, or training development documentation.
Initial Hazard Analysis Determination documentation	Field Work Supervisor	Record copy retained in the work originating document. Electronic copy maintained in the Job Control System (JCS) or Maximo.

8.0 REFERENCES

8.1 Source References

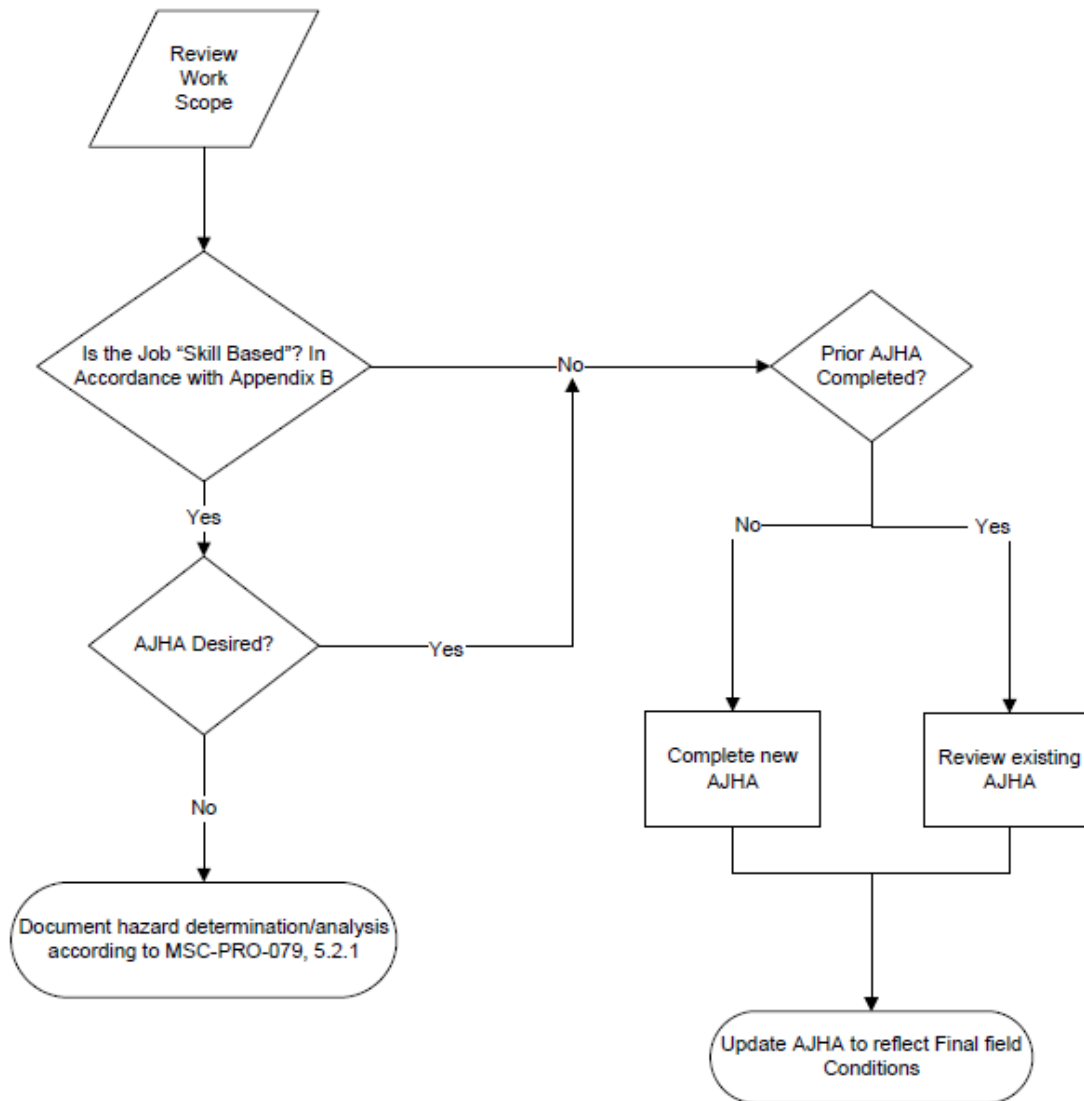
10 CFR 851, Worker Safety and Health Program
10 CFR 830, Subpart A, Nuclear Safety Management – QA Requirements
OA-50 Inspection of ES&H at the Hanford Site, February 2002

Job Hazard Analysis

8.2 Working References

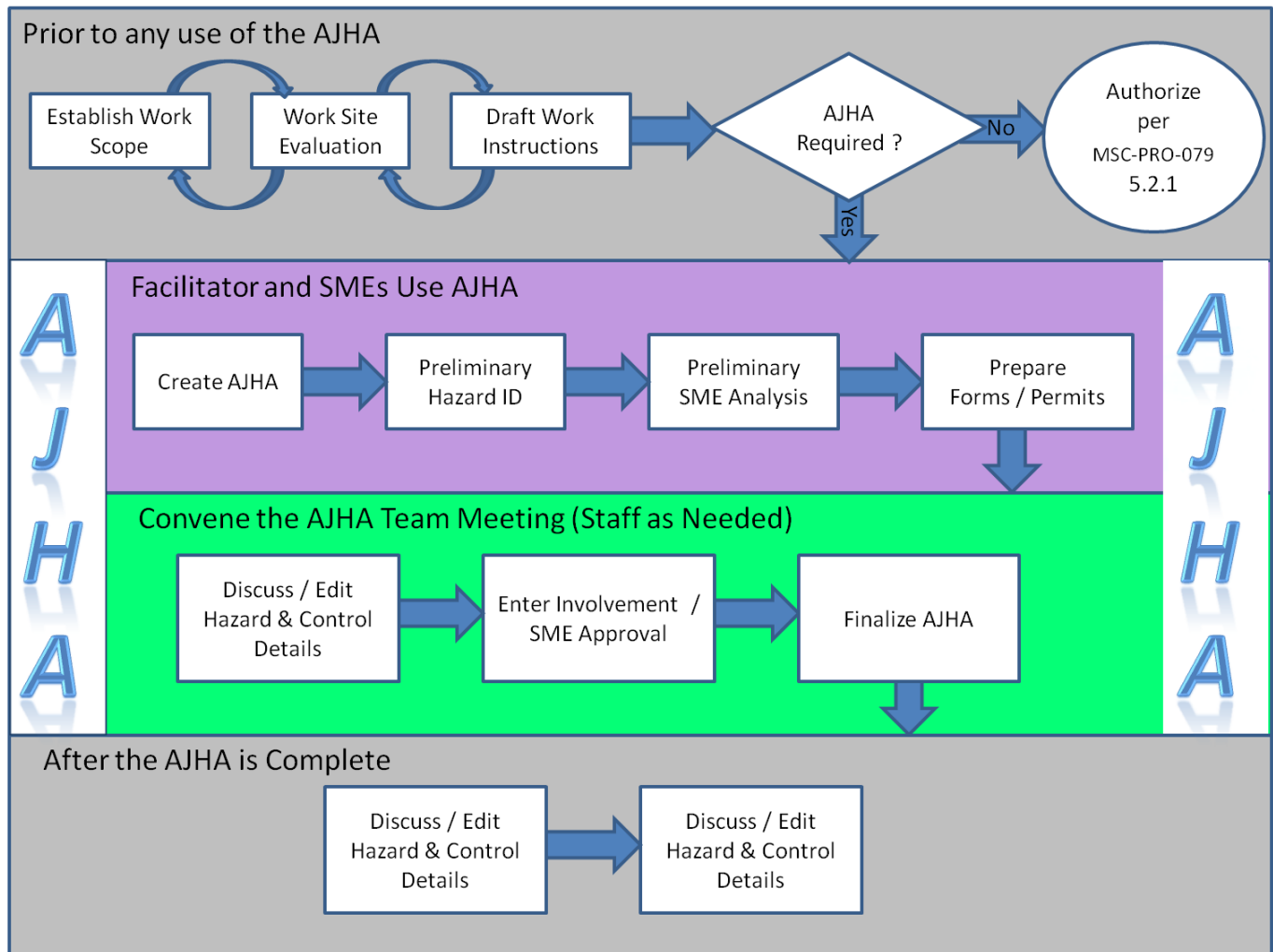
MSD-RD-13299, Hazard Communication
MSC-MP-32219, MSA Worker Safety and Health Program
[MSC-MP-47124](#), *Inter-Contractor Work Control*
[MSC-5173](#), *MSC Radiological Control Manual*
[MSC-GD-17132](#), *Automated Job Hazard Analysis Process Guide*
MSC-PRO-[066](#), *Electrical utilities Lock and Tag Program*
[MSC-PRO-589](#), *Mission Support Contract Management System Documents*
[MSC-PRO-8635](#), *Review and Approval of Technical Documents*
[MSC-PRO-10468](#), *Chemical Management Process*
[MSC-PRO-10588](#), *Records Management Processes*
[MSC-PRO-12115](#), *Work Management*
MSC-PRO-15333, Environmental Protection Processes
[MSC-PRO-45821](#), *MSA Inter-Contractor Work Order Process*
[MSC-PRO-48065](#), *Subcontractor Safety Processes*
[MSC-PRO-17916](#), *Industrial Hygiene Baseline Hazard Assessments*
MSA-1200369 MSA General Hazard Analysis [Memorandums of Agreement](#) between Mission Support Alliance, LLC and other Hanford Site contractors (see <http://msc.rl.gov/ims/page.cfm/MOA>).
DOE-0336, Hanford Site Lockout/Tagout
DOE-0344, Hanford Site Excavating, Trenching and Shoring Procedure (ESETSP)
DOE-0346, Hanford Site Fall Protection Program (HSFPP)
DOE-0359, Hanford Site Electrical Safety Program (HSESP)

Job Hazard Analysis

FIGURE 1 --Job Hazard Analysis Process

* You may choose to use an AJHA at any time during this process

Job Hazard Analysis

Figure 2 -- Integration of Job Hazard Analysis with the Work Planning Process

Job Hazard Analysis

APPENDIX A Glossary of Terms

AJHA Coordinator	The individual designated by the Project/Facility as having the responsibility for completing the AJHA and related Reports. The AJHA Coordinator may be any person authorized by the Project/Facility to perform the job hazard analysis function during the work planning process. The AJHA Coordinator has special authorization in the AJHA application to lock/unlock/delete AJHAs. This position is usually filled by the planner, procedure author or Technical Authority.
	NOTE: <i>The term AJHA Coordinator is synonymous with AJHA Facilitator; these terms may be used interchangeably.</i>
Craft Specific Hazard Analysis	The identification and analysis of the hazards and determination of controls related to the fundamental tasks that constitute the skill based work of the workers assigned duties for specific craft group.
General Hazard Analysis	The identification and analysis of the hazards and determination of controls related to the fundamental tasks performed by all employees during routine every-day activities.
Graded Approach	The process of <i>tailoring</i> hazard controls to the work being performed, applying a level of planning and rigor that is commensurate to the level of ESH issues, risk, complexity, and work coordination. Graded approach seeks to achieve a balanced combination of craft skills, written guidance/worker instructions, and worksite supervision.
Hazard	A work place hazard means a physical, chemical, biological, or safety hazard with a potential to cause illness, injury, or death to a person or damage to the environment (e.g., environmental impact).
Hazardous Energy	Any source of hazardous energy or materials. Sources include electrical, mechanical, hydraulic, pneumatic, chemical (toxic, hazardous, dangerous, radiological, carcinogenic), radiation generating devices, and thermal energies, as well as various forms of potential energy, such as that stored in springs, compressed gases, or in suspended objects (gravitational).
Low Hazard Activity	Minimal threat to personnel or property. The activity is highly unlikely to result in an accident that would cause death, permanent disability, a lost work day injury, or loss of a facility asset.
Skill-Based Work	Work that is determined to meet all the criteria outlined in Appendix B , Initial Hazard Analysis Determination Criteria.

Job Hazard Analysis

MSC-PRO-079, Rev. 10

Effective Date: September 30, 2014

Page 29 of 36

Standing AJHA	The method used to document job hazard analysis for a defined scope of work which is <u>activity-based</u> , considered routine in nature, and is performed on a regular or repetitive basis under stable conditions. A Standing AJHA may be applied to work performed in more than one location when the activities/tasks in the work environment are consistent (e.g., hazards and controls do not vary), with conditions expected to remain constant. A Standing AJHA is modified, or a new one developed, when the activities/tasks change.
Subject Matter Expert	The individual designated by the Functional Manager to provide guidance and instruction for the implementation of requirements to be applied at the activity level.
Technical Authority	The individual designated by the Function Manager to provide the MSA interpretation of requirements in MSC documents and documents referenced in the MSC. For Level 3 documents, the Technical Authority may still be referred to as the Technical Authority.
Validation Authority	(MSC-PRO-12115) The individual or position designated by facility, planning center, or project management as having the responsibility and authority to validate work requests and then direct the requests into the proper type of WD for planning and performance. Note that use of a Screener, a Work Control Clerk who screens work requests for duplicates /invalid requests, is allowed; separate from the Validation Authority position
Worksite Review	The activity/process undertaken to think-through a planned job to assure a level of readiness to perform work. It includes an understanding of the work environment hazards that may be acquired through inherent knowledge, work document review, and work site walkthrough. For ALARA purposes, the use of photography and/or video media may be used.

Job Hazard Analysis

APPENDIX B Initial Hazard Analysis Determination Criteria

This appendix identifies criteria for determining the job hazard analysis methods and documentation requirements based on the nature of the hazards and level of subject matter expert involvement needed. All work performed by MSA and its subcontractors shall be initially evaluated using the criteria in this appendix. This initial evaluation of work activities will result in a determination that:

1. The work, including the environment where the tasks are performed, will expose the workers and the environment only to hazards that the workers can reasonably be expected to recognize and mitigate on their own, relying only on the base knowledge and training requirements of his or her craft group. This determination is commonly referred to as “Skill Based” work or,
2. The hazard analysis for all other work is performed using the AJHA tool.

The results of this initial determination for each work activity shall be documented in work planning documents in accordance with Section 5.2.1 Paragraph 3.b of this procedure.

The hazards shall be identified and control measures established for all work activities.

- The hazards and related control measures for work determined to be “Skill Based” as a minimum are documented in a General Hazard Analysis (GHA), and/or a Craft Specific Hazard Analysis (CSHA) as described in Section 2.2 of this procedure. An AJHA can also be used for documenting the hazard analysis of a specific skill based work activity.
- The hazards and controls for all other work activities shall be document using the AJHA as described in Section 5.2.2 of this procedure.

NOTE: The criteria below that allows an exemption from Appendix B for hazards that have been “*previously evaluated and approved for the specific activity*” is intended to apply when:

- An established form, such as the Beryllium Work Permit, or Fall Protection Work Permit, has been completed and is current according to the related program for the specific work activity and location, and
- No other Appendix B criteria apply.

Work that involves any of the following is beyond skill based work and requires the use of the AJHA in accordance with Section 5.2.2 of this procedure:

1. The worker(s) will be exposed to hazards that have not been previously identified and the hazards and controls have not been documented for the specific work activity/area.
2. The work is a complex task. (Complexity refers to the involvement of multiple resources [e.g., composite of several craft disciplines performing unrelated tasks, multiple unmitigated hazards, multiple organizations, multiple contractors, specialized equipment, intricate and/or precise actions required.])

Job Hazard Analysis

3. The work is greater than a low hazard radiological activity based on the final determination of radiological hazards (Refer to MSC-5173, MSC Radiological Control Manual, Chapter 3, Section 311).
4. There is a potential for new hazards to be introduced.
5. Based on review of existing site conditions, tools, or equipment there is a potential for exposure to hazardous materials that have not been previously evaluated, approved by Industrial Hygiene and/or Safety for like activities. (See MSC-RD-13299 Hazard Communication)
6. The work involves the use or handling of chemicals not previously evaluated and approved for the specific activity. (See MSC-PRO-10468 "Chemical Management Process")
7. The work activity involves Beryllium hazards that have not been previously evaluated and approved for the specific activity:
8. The work is likely to cause the disturbance of any class one or class two asbestos, or will be performed in an area where asbestos contamination is likely, such as within 75 feet of a steam line with damaged or deteriorated insulation,
9. Based on a review of the proposed work scope including existing work site conditions, there is a potential for exposure to or accessibility to sources of hazardous energy (see definition in Appendix A). involving one or more of the following:
 - a) **Unmitigated hazardous energy associated with the identified scope of work.** This category includes any unmitigated hazardous energy associated with the work itself. It does NOT include systems locked and tagged out in accordance with DOE-0336, Hanford Site Lockout/Tagout requirements, or Electrical Utilities high voltage work scope controlled under MSC-PRO-066, Electrical Utilities Lock and Tag Program.

NOTE: *Operation of a circuit breaker, when conducted in accordance with the requirements of DOE-0359, does not require Lockout/Tagout, and is not included within this category of work.*

- b) **Energized work requiring an EEWP.** This category includes any energized work requiring an Energized Electrical Work Permit (EEWP) per DOE-0359, Section 5.7, Step 1.
- c) **Energized work exempted from requiring an EEWP, > 8 cal/cm².** This category includes any energized work (other than lockout/tagout related, i.e., testing and/or troubleshooting) exempted from requiring an EEWP per DOE-0359, Section 5.7, Step 2, where workers may be exposed to a potential Arc Flash Incident Energy (IE) > 8 cal/cm² (IE calculated), or a Hazard / Risk category > 2* (via application of NFPA-70E tables, when IE has not been calculated).
- d) **Hazardous energy associated with the lockout / tagout process itself, > 8 cal / cm².** This category includes any hazardous electrical energy associated with the implementation of a lockout / tagout itself, including any required component manipulations, or safe

Job Hazard Analysis

- condition / safe to work checks, where workers may be exposed to a potential Arc Flash Incident Energy $> 8 \text{ cal/cm}^2$, or a Hazard / Risk category $> 2^*$.
10. The work requires the use of respiratory protection, other than for the purpose of training, or as specified in an approved Radiological Work Package (RWP) or evaluations of the specific activity previously approved by Industrial Hygiene.
 11. The work requires the entry into a permit required confined space not previously evaluated (i.e., no completed, approved Hanford Confined Space Hazard Identification Form currently exists for the associated Confined Space) ; or the activity requires entry into a non-permit required confined space that will be temporarily upgraded to a permit required confined space
 12. The work requires controls to address temperature extremes, other than evaluations of the specific activity previously approved by Industrial Hygiene and/or Safety.
 13. The work requires controls to address noise exposure, other than those areas already evaluated and posted or otherwise documented when posting is not practical with specific hearing protection requirements,
 14. The work involves any of the following fall related hazards unless previously approved in a Fall Protection Work Permit in accordance with DOE-0346:
 - a. Work from a ladder and requires the workers to work where his or her feet must be 6 feet above the surface below, or
 - b. Working at a height where employees are exposed to an unprotected edge with a fall potential of >6 feet, or
 15. The work is above dangerous equipment.
 16. The work involves scaffold erection/dismantling where the worker(s) will be 10 feet above the surface below,
 17. The activity triggers regulatory occupational medical clearance(s) related to hazard exposures not previously analyzed and documented. Does NOT include medical clearances related to job title assignment (e.g. DOT Driver, SPO, etc.)
 - a. The activity requires the evaluation of an uncharacterized hazard.
 18. The activity requires the development of a unique safety plan(s) and/or requires the specification of details specific to the activity in order to comply with special safety provisions of selected MSC procedures,
 19. The work requires an excavation permit (See DOE 0344 Hanford Site Excavating, Trenching, and Shoring),
 20. The work involves environmental regulatory compliance processes beyond those addressed in ELM for the worker(s) performing the work and the activity is not otherwise covered in a pre-approved Environmental Activity Screening Form (Site Form A-6003-727),
 21. The work involves a penetration of a wall, fire door, floor, ceiling, roof, or other surface, where hazards cannot be identified and mitigated.

Job Hazard Analysis

22. The work involves hazards that the worker **cannot** reasonably be expected to recognize and know how to mitigate based on the fundamental knowledge and training requirements of his or her job assignment.

Job Hazard Analysis

APPENDIX C Construction Subcontractor Hazard Analysis

1.0 PURPOSE

This appendix specifies the job hazards analysis requirements and processes for construction subcontracted work to be performed by MSC subcontractors (CONTRACTOR) as an MSC managed on site activity. The requirements specified in this appendix are applied at the specific job/activity level. These requirements are intended to assure the flow down of worker safety and health requirements are communicated in sufficient detail to Contractors at all tiers. Establishing the overall safety requirements for the scope of work to be performed by a subcontractor shall be done in accordance with MSC-PRO-48065 Contractor Safety Process.

2.0 REQUIREMENTS

The CONTRACTOR shall utilize a systematic and comprehensive process to analyze hazards for MSC managed onsite work activities provided by the CONTRACTOR. The CONTRACTOR hazard analysis process shall ensure:

1. That prior to the commencement of all work activities, a specific Job Safety Analysis (JSA) Site form A-6004-280 Job-Specific Analysis/Activity Hazard Analysis (K-2 JSA/AHA), or a finalized hazard analysis using the Automated Job Hazard Analysis (AJHA) application is in place.
2. Specific work activities shall be reviewed in sufficient detail to identify any hazards that may be introduced by the work process, tools, materials, equipment, the work environment, and/or adjacent activities. Consideration should also be give to any hazards generated by the work that may have an effect on adjacent work activities being performed by others.
 - a. The Contractor shall consider relevant lessons learned, if any, from the OPEXShare.doe.gov website and/or AJHA Activity Level Feedback Databases for consideration during work planning and hazard identification/analysis.
3. Hazards identified shall be documented and clearly associated with the tasks/activities and work locations where the hazard is likely to occur.
4. The CONTRACTOR hazard analysis documents shall be approved by the MSA Buyer, and when applicable the MSA Construction Manager.
5. Hazard analysis documents shall be reviewed and approved by qualified subject matter experts (SME) appropriate for the hazards identified (e.g. Industrial Safety, Industrial Hygiene, Fire Protection, Environmental Compliance, Electrical Safety, etc.).

Job Hazard Analysis

- SMEs analyzing hazards shall be individuals with sufficient expertise to establish detailed control measures in compliance with MSC, DOE, OSHA, State, and local occupational safety, health, and environmental requirements.
 - In addition to established control measures, the details of the SME analysis (e.g. calculations, rationale, references, etc.) shall be documented where warranted. For example; a good faith roof assessment and/or load calculations for roof work access.
6. Required safety related forms and permits shall be completed with necessary information and approvals (e.g., MSC Fire Marshal Permit, New Electrical Installation Permit, Excavation Permit, etc.).
 7. Worker training, and qualification requirements are identified, and objective evidence the workers meet those requirements shall be provided,
 8. Hazards identified during the process of work due to unexpected conditions, changes in methodology and/or change of scope shall be documented on Site Form A-6004-279 Task Specific Job Safety Analysis (K-3 JSA), reviewed, control measures established, and approved by applicable SMEs.

3.0 IMPLEMENTATION

1. Prior to commencement of affected work, the CONTRACTOR shall prepare a job specific hazard analysis (i.e., Site form A-6004-280 Job-Specific Analysis/Activity Hazard Analysis (K-2 JSA/AHA) or Automated Job Hazard Analysis (AJHA)).
2. The CONTRACTOR provided analysis shall:
 - Identify foreseeable hazards and planned protective measures;
 - Address further hazards revealed by supplemental site information (e.g., site characterization data, as-built drawings) provided by the construction manager, or as identified during site walkthroughs.
 - Provide drawings and/or other documentation of protective measures for which applicable Occupational Safety Administration (OSHA) standards require preparation by a Professional Engineer or other qualified professional.
 - Identify competent persons required for workplace inspections of the construction activity, where required by OSHA standards.
 - Ensure worker training and qualifications specifically required for the identified work hazards are addressed.
 - Ensure workers are aware of foreseeable hazards and the protective measures described within the specific activity hazard analysis prior to beginning work on

Job Hazard Analysis

the affected activity.

- Require that workers acknowledge being informed of the hazards and protective measures as associated with the assigned work activities. Those workers failing to utilize appropriate protective measures shall be subject to the CONTRACTOR disciplinary process.
3. The CONTRACTOR shall submit the completed hazard analysis to be approved by the BUYER and if applicable and obtain MSC construction manager approval.
 4. MSC Safety and Health shall review and approve the CONTRACTOR hazard analysis document and advise the Buyer as needed regarding the Buyer evaluation of the CONTRACTOR hazard analysis,
 5. BUYER approval shall be documented and in place prior to the commencement of the CONTRACTOR work activities.